



## **I. Chemical Product and Company Identification**

Product Name: XL-8  
Identification #: 35-450-0088  
Product Use/Class: Crosslinker  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 472  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: RAA  
Date Prepared: 02/28/2008

## **II. Composition/Information on Ingredients**

Chemical Name:	Ethylene Glycol
CAS Number:	107-21-1
Percent by Mass Less Than:	10-30
Exposure Limits	
Threshold Limit Value - Time Weighted Average:	None Established
Threshold Limit Value - Short Term Exposure Limit:	50 ppm
Permissible Exposure Limit - Time Weighted Average:	None Established
Permissible Exposure Limit - Ceiling:	50 ppm
Company Threshold Limit - Time Weighted Average:	None Established
Skin:	None Established
Chemical Name:	Proprietary Component
CAS Number:	XXXXX-XX-X
Percent by Mass Less Than:	3-7
Exposure Limits	
Threshold Limit Value - Time Weighted Average:	None Established
Threshold Limit Value - Short Term Exposure Limit:	None Established
Permissible Exposure Limit - Time Weighted Average:	None Established
Permissible Exposure Limit - Ceiling:	None Established
Company Threshold Limit - Time Weighted Average:	None Established
Skin:	None Established

## **III. Hazardous Identification**

<b>Emergency Overview:</b>	May cause eye and skin irritation.
<b>Eye Contact:</b>	Severely irritating. If not removed promptly, product will injure eye tissue, which may result in permanent damage.
<b>Skin Contact:</b>	May cause skin irritation. Allergic reactions are possible.
<b>Inhalation:</b>	Prolonged inhalation may be harmful and can cause headaches, dizziness, nausea, decreased blood pressure, and changes in heart rate. May be irritating to mucous membranes and lung tissue.
<b>Ingestion:</b>	This material may be harmful or fatal if swallowed. May be irritating to mouth, throat, and stomach.
<b>Chronic Harards:</b>	Overexposure may cause nervous system damage, liver damage, lung damage, and/or kidney disorder and damage.

Primary Route(s) of Entry:	<input type="checkbox"/> Skin Contact	<input type="checkbox"/> Eye Contact	<input checked="" type="checkbox"/> Ingestion
	<input type="checkbox"/> Skin Absorbtion	<input type="checkbox"/> Inhalation	

#### IV. First Aid Measures

<b>Eye Contact:</b>	Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Get medical attention if irritation persists.
<b>Skin Contact:</b>	Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation persists.
<b>Inhalation:</b>	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Ingestion:</b>	If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

#### V. Fire Fighting Measures

<b>Flash Point:</b>	>200 F
<b>Auto Ignition Temperature:</b>	N/A
<b>Lower Explosive Temp.:</b>	N/A
<b>Upper Explosive Temp.:</b>	N/A
<b>Extinguishing Media:</b>	CO2, Dry Chemical, Foam, Water Fog
<b>Unusual Fire and Explosive Harards:</b>	Empty containers retain product residue and can be dangerous.
<b>Special Fire Fighting Procedures:</b>	As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear.

#### VI. Accidental Release Measures

<b>Steps to be Taken in Case Material is Released or Spilled:</b>	Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. (See exposure contro / Presonal protection section) Spilled material should be contained and disposed of according to applicable regulations.
---	--

#### VII. Handling and Storage

<b>Handling:</b>	Wash thoroughly after handling.
<b>Storage:</b>	Keep container closed when not in use. Store in a cool, dry, well ventilated place away from incompatible materials.

### **VIII. Exposure Controls/Personal Protection**

Engineering Controls:	Local exhaust and ventilation may be necessary to control any air contaminants to within their exposure limits.
Respiratory Protection:	Use a NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge when airborne concentrations are expected to exceed exposure limits. Protection by air purifying respirators is limited.
Skin Protection:	Where contact is likely, wear chemical resistant gloves and rubber boots.
Eye Protection:	Wear safety glasses with side shields (or goggles).
Other Protective Equipment:	Emergency eyewash stations and deluge showers should be available in the work area.
Hygienic Practices:	Wash hands before eating. Use only with adequate ventilation. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material.

### **IX. Physical and Chemical Properties**

Boiling Point:	339-387 F	Vapor Density:	Not Determined
Odor:	None	Odor Threshold:	No Information
Appearance:	Light yellow	Evaporation Rate:	No Information
Solubility in H2O:	Complete	Specific Gravity:	1.1050
Freeze Point:	Not Determined	pH at 50.0%:	6-8 @ 100%
Vapor Pressure:	N/A	Viscosity:	No Information
Physical State:	Liquid		
Coefficient of Water Oil Distribution:	No Information		

### **X. Stability and Reactivity**

Conditions to Avoid:	Avoid temperature extremes and incompatibles.
Incompatibility:	Avoid contact with strong acids and strong bases.
Hazardous Decomposition Products:	Oxides of carbon and nitrogen.
Hazardous Polymization:	Will not occur under normal conditions.
Stability:	This product is stable under normal storage conditions.

### **XI. Toxicological Properties**

Toxicological Properties:	No product information is available.
Oral:	No product information is available.
Dermal:	No product information is available.
Inhalation:	No product information is available.

### **XII. Ecological Information**

Ecological Properties:	No product information is available.
Ecotoxicity:	No product information is available.
Chemical Fate Information:	No product information is available.

### **XIII. Disposal Consideration**

Disposal Method: Consult local, state, and federal regulatory agencies for acceptable disposal procedures and disposal locations. Disposal in streams or sewers may be prohibited by federal, state, and local regulations.

RCRA Status: Not Determined.

#### ***XIV. Transportation Information***

DOT Proper Shipping Name: Not DOT Regulated

DOT Technical Name:

DOT Hazard Class:

DOT Hazard Subclass:

DOT UN/NA Number:

Packing Group:

Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA:	Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)		
TSCA Status:	All components of this product are listed on the Toxic Substance Control Act Inventory or are excluded from the listing requirements.		
CERCLA SARA:	This product has been reviewed according to the EPA 'Hazard Categories' promulgated under the sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: Immediate Health Hazard.		
SARA Section 313 Required Reporting:	Chemical	CAS Number	WT/WT%
	Ethylene Glycol	107-21-1	10-30

## ***XVI. Other Information***

Other Information:	NA = Not applicable	ND = Not Determined	NI = No Information	NE = Not Established
MSDS Updated:	1/1/2012			
MSDS Printed:	8/15/2014			

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



## ***I. Chemical Product and Company Identification***

Product Name: ULT Resin Sand Activator  
Identification #: 35-511-0100  
Product Use/Class: Surfactant  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 2108  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: LZ  
Date Prepared: 10/20/2011

## ***II. Composition/Information on Ingredients***

Chemical Name:	Alcohols, C12-14-Secondary, Ethoxylated
CAS Number:	84133-50-6
Percent by Mass Less Than:	50-70%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	N/A
Threshold Limit Value - Short Term Exposure Limit:	N/A
Permissible Exposure Limit - Time Weighted Average:	N/A
Permissible Exposure Limit - Ceiling:	N/A
Company Threshold Limit - Time Weighted Average:	N/A
Skin:	N/A

Chemical Name:	Methanol
CAS Number:	67-56-1
Percent by Mass Less Than:	30-50%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	262 mg/m <sup>3</sup> , 200 ppm
Threshold Limit Value - Short Term Exposure Limit:	328 mg/m <sup>3</sup> , 250 ppm
Permissible Exposure Limit - Time Weighted Average:	260 mg/m <sup>3</sup> , 200 ppm
Permissible Exposure Limit - Ceiling:	N/A
Company Threshold Limit - Time Weighted Average:	N/A
Skin:	N/A

Chemical Name:	Polyethylene-Glycol
CAS Number:	25322-68-3
Percent by Mass Less Than:	.01-.05

Exposure Limits

Threshold Limit Value - Time Weighted Average:	10 mg/m <sup>3</sup> (aerosol)
Threshold Limit Value - Short Term Exposure Limit:	N/A
Permissible Exposure Limit - Time Weighted Average:	N/A
Permissible Exposure Limit - Ceiling:	N/A
Company Threshold Limit - Time Weighted Average:	N/A
Skin:	N/A

Chemical Name:	Nonylphenol Ethoxylate
CAS Number:	9016-45-9
Percent by Mass Less Than:	~50%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	NE
Threshold Limit Value - Short Term Exposure Limit:	NE
Permissible Exposure Limit - Time Weighted Average:	NE
Permissible Exposure Limit - Ceiling:	NE
Company Threshold Limit - Time Weighted Average:	NE
Skin:	NE

### III. Hazardous Identification

Emergency Overview:

**DANGER !**

FLAMMABLE LIQUID AND VAPOR. MAY FORM EXPLOSIVE MIXTURES WITH AIR. HARMFUL IN CONTACT WITH SKIN OR IF SWALLOWED. CAUSES EYE BURNS. INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS AND NAUSEA AND MAY LEAD TO UNCONSCIOUSNESS. CAUSES RESPIRATORY TRACT AND SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE DEVELOPMENTAL HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA. POSSIBLE REPRODUCTIVE HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS IN FEMALES, BASED ON ANIMAL DATA. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED.

Eye Contact: Corrosive to eyes. Causes burns.

Skin Contact: Harmful in contact with skin. Irritating to skin.

Inhalation: Can cause central nervous system (CNS) depression. Irritating to respiratory system. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.

Ingestion: Harmful if swallowed. Can cause central nervous system (CNS) depression. May cause burns to mouth, throat and stomach. May be fatal or cause blindness if swallowed.

Chronic Harards: Possible reproductive hazard. Over exposure may cause nervous system damage, liver disorder and damage, kidney damage, lung damage, and blindness if swallowed. This product may release formaldehyde which is irritating to the eyes and upper respiratory tract. OSHA has listed formaldehyde as a potential human carcinogen.

Primary Route(s)  
of Entry:

■ Skin Contact

■ Eye Contact

■ Ingestion

■ Skin Absorbtion

■ Inhalation

#### **IV. First Aid Measures**

Eye Contact: Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Get medical attention IMMEDIATELY.

Skin Contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation: Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion: Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

#### **V. Fire Fighting Measures**

Flash Point:	12C (54F) Tag Closed Cap Astm D 56
Auto Ignition Temperature:	725F
Lower Explosive Temp.:	6% (V) (Solvent)
Upper Explosive Temp.:	36.5% (V) (Solvent)
Extinguishing Media:	CO2, Dry Chemical, Alcohol Foam (Do not use sharp water jet)
Unusual Fire and Explosive Harards:	Liquid and vapor may cause a flash fire or ignite explosively. Vapor is heavier than air and may settle in low areas or spread long distances to a source of ignition and flashback. Explosive atmospheres may linger. Closed containers can rupture and release toxic vapors or decomposition products.
Special Fire Fighting Procedures:	Wear full emergency protective equipment including NIOSH approved pressure demand self-contained breathing apparatus.

## ***VI. Accidental Release Measures***

Steps to be Taken in Case Material is Released or Spilled:	Extinguish any possible ignition sources until the area is determined to be free from fire or explosion hazard. Use non-sparking tools and equipment. Wear appropriate Personal Protective Equipment (PPE). Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste cotainer. (See exposure controls/ personal protection section.) For large spills use water spray to suppress vapors and flush spill area. Water spray may reduce vapors but may not prevent ignition in enclosed spaces. Prevent runoff from entering waterways or sewers. Spilled materials should be disposed of according to federal, state, and local regulations.
--	--

## ***VII. Handling and Storage***

Handling:	Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Usenon-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Follow US NFPA 30, "Flammable & Combustible Liquids Code", or other national, state and local codes on safe handling of flammable liquids. Train workers in the recognition and prevention of hazards associated with the storage, handling and transfer of flammable liquids in the plant. Empty containers retain product residue and can be hazardous. Do not reuse container. Do not breathe dust, vapor, mist or gas.
Storage:	Keep away from heat, sparks, flames, and any other ignition sources including static electricity. Keep container closed when not in use. Loosen closure cautiously to release pressure. Use pumps or inert gas to unload bulk trucks. Do not use air to unload. Store in a cool, dry, well ventilated location away from incompatible materials. Empty containers may contain residue. DO NOT cut, torch, or reuse without commercial cleaning first.

## ***VIII. Exposure Controls/Personal Protection***

Engineering Controls:	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
Respiratory Protection:	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Skin Protection:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.  Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Eye Protection:	Wear safety glasses with side shields (or goggles) and a face shield.
Other Protective Equipment:	Wear protective clothing and boots. Follow all MSDS label precautions even after container is emptied because they may retain product residues. Ground and bond containers when transferring materials. Use only with adequate ventilation. Emergency eyewash stations and deluge showers should be available in the work area.
Hygienic Practices:	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

## IX. Physical and Chemical Properties

Boiling Point:	160 F	Vapor Density:	No Information
Odor:	slight alcoholic	Odor Threshold:	No Information
Appearance:	Colorless, Clear	Evaporation Rate:	No Information
Solubility in H2O:	Miscible	Specific Gravity:	.92
Freeze Point:	Less than -18C	pH at 50.0%:	No Information
Vapor Pressure:	Not Determined	Viscosity:	No Information
Physical State:	Liquid		
Coefficient of Water Oil Distribution:	No Information		

## X. Stability and Reactivity

Conditions to Avoid:	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Avoid exposure - obtain special instructions before use.
Incompatibility:	Avoid contact with reducing agents and strong oxidizers.
Hazardous Decomposition Products:	Oxides of carbon.
Hazardous Polymerization:	Will not occur under normal conditions.
Stability:	This product is stable under normal storage conditions.

## XI. Toxicological Properties

Toxicological Properties: Methanol 67-56-1  
Polyethylene Glycol 25322-68-3  
Oral: Methanol: LD50: 5,628 mg/Kg (rat); LDLo 143 mg/kg (human)  
Polyethylene Glycol: LD50 Oral 14,000 mg/kg (rabbit)  
Dermal: Methanol: LDLo: 393 mg/kg (monkey)  
Inhalation:

### ***XII. Ecological Information***

Ecological Properties: No known significant effects or critical hazards.  
Ecotoxicity: Methanol: Fresh Water: Acute EC50 13,000 mg/1/4 d (rainbow trout, donaldson trout)  
Polyethylene Glycol: Fresh Water: Acute LC50>20,000 m/l/96 h (rainbow trout, donaldson trout)  
Chemical Fate Information: No product information is available.

### ***XIII. Disposal Consideration***

Disposal Method: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.  
RCRA Status: No Information

### ***XIV. Transportation Information***

DOT Proper Shipping Name: Methanol  
DOT Technical Name: METHANOL SOLUTION (Alcohols, C12-14-Secondary, Ethoxylated)  
DOT Hazard Class: 3  
DOT Hazard Subclass:  
DOT UN/NA Number: UN1230  
Packing Group: II  
Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA: This product is considered "hazardous" according to the requirements of the Occupational Safety and Health Administration 29 CFR Part 1910.1200.

TSCA Status: All components of this product are listed on the Toxic Substance Control Act Inventory.

CERCLA SARA: Section 311/312: This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311/312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Immediate (acute) Health Hazard, Chronic (delayed) Health Hazard, Fire Hazard

SARA 313 - Supplier Notification  
This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

Methanol - 67-56-1 ( 39.05%),  
SARA 302 Extremely Hazardous Substances None required.

SARA Section 313 Required Reporting:	Chemical	CAS Number	WT/WT%
	Methanol	67-56-1	30-50%

## ***XVI. Other Information***

Other Information: NA = Not applicable ND = Not Determined NI = No Information NE = Not Established

MSDS Updated: 12/28/2012

MSDS Printed: 8/15/2014

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



### *I. Chemical Product and Company Identification*

Product Name: Super 100 NE  
Identification #: 35-525-0100  
Product Use/Class: Surfactant & Foamer  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 455  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: KLH  
Date Prepared: 12/10/2012

### *II. Composition/Information on Ingredients*

Chemical Name:	Isopropyl Alcohol
CAS Number:	67-63-0
Percent by Mass Less Than:	20-40%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	400 ppm
Threshold Limit Value - Short Term Exposure Limit:	500 ppm
Permissible Exposure Limit - Time Weighted Average:	400 ppm
Permissible Exposure Limit - Ceiling:	500 ppm
Company Threshold Limit - Time Weighted Average:	NE

Skin:	No information
-------	----------------

Chemical Name:	Methanol
CAS Number:	67-56-1
Percent by Mass Less Than:	5-15%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	200 ppm
Threshold Limit Value - Short Term Exposure Limit:	250 ppm
Permissible Exposure Limit - Time Weighted Average:	200 ppm
Permissible Exposure Limit - Ceiling:	NIOSH IDLH 6000 ppm
Company Threshold Limit - Time Weighted Average:	n/a

Skin:	n/a
-------	-----

Chemical Name:	N-Cocoamidopropyl-N,N-dimethyl-N-2-hydroxypropylsulfobetaineE
CAS Number:	68139-30-0
Percent by Mass Less Than:	5-15%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	N/A
Threshold Limit Value - Short Term Exposure Limit:	N/A
Permissible Exposure Limit - Time Weighted Average:	N/A
Permissible Exposure Limit - Ceiling:	N/A
Company Threshold Limit - Time Weighted Average:	N/A

Skin:	N/A
-------	-----

Chemical Name:	Glycol Ether
CAS Number:	111-76-2
Percent by Mass Less Than:	1-5%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	NA
Threshold Limit Value - Short Term Exposure Limit:	NA
Permissible Exposure Limit - Time Weighted Average:	25 ppm
Permissible Exposure Limit - Ceiling:	NA
Company Threshold Limit - Time Weighted Average:	NA

Skin:	N/A
-------	-----

### III. Hazardous Identification

Emergency Overview:	Will be easily ignited by heat, spark or flames. Prolonged exposure may cause chronic effects. Components of the product may be absorbed into the body by inhalation, ingestion and through the skin.
Eye Contact:	Eye contact may result in corneal injury. Contact may irritate or burn eyes. Do not get this material in contact with eyes.
Skin Contact:	Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash). Do not get this material in contact with skin. This product may be harmful if it is absorbed through the skin.
Inhalation:	Prolonged inhalation may be harmful. May cause cancer by inhalation. Do not breathe dust/fumes/gas/mist/vapors/spray.
Ingestion:	May cause delayed lung damage. Do not ingest. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Components of the product may be absorbed into the body by ingestion.
Chronic Harards:	This product may be harmful if it is absorbed through the skin. Unconsciousness. Shortness of breath. Conjunctiva. Edema. Jaundice. Cyanosis. Livery injury may occur. Kidney injury may occur. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatugie, mental confusion, and blurred vision) and/or damage. May cause delayed lung damage. Prolonged skin contact may defat the skin and produce dermatitis.

Primary Route(s)  
of Entry:

■ Skin Contact

■ Eye Contact

■ Ingestion

■ Skin Absorbtion

■ Inhalation

#### IV. First Aid Measures

Eye Contact:	Immediately flush eyes with plenty of water for at lease 15 minutes. Get medical attention if irritation develops or persists.
Skin Contact:	Wash off with warm water and soap. Get medical attention if irritation develops or persists.
Inhalation:	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately. *NOTE TO PHYSICIAN* In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
Ingestion:	If swallowed, seek medical advice immediately and show this container or label. Do not induce vomiting without medical advice.

#### V. Fire Fighting Measures

Flash Point:	80 F
Auto Ignition Temperature:	734 degrees F
Lower Explosive Temp.:	N/A
Upper Explosive Temp.:	N/A
Extinguishing Media:	Water. Alcohol foam. Dry cemical. Carbon dioxide (CO2). DO NOT use a solid water stream as it may scatter and spread fire.
Unusual Fire and Explosive Harards:	Vapors can travel to a source of ignition and flash back. "Empty" containers retain product residue (liquid and/or vapors) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC, ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, properly bunged and promptly returned to a drum conditioner, or properly disposed of. Emits highly toxic and irritating fumes in a fire.
Special Fire Fighting Procedures:	In the event of fire and/or explosion, do not breathe fumes. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or moniter nozzels. Withdrawa immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Move containers from fire area if you can do it without risk. For massive fire, use unmanned hose holders or moniter nozzles; if this is impossible, withdraw from area and let fire burn. Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out.

## ***VI. Accidental Release Measures***

Steps to be Taken in Case Material is Released or Spilled:	Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering. Keep unnecessary personnel away. Stay upwind. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas. Should not be released into the environment. Large spills: Dike far ahead of liquid spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. After removal, flush contaminated area thoroughly with water. Small spills: Wipe up with absorbent material (e.g., cloth, fleece). Clean contaminated surface thoroughly. Never return spills in original containers for re-use.
--	---

## ***VII. Handling and Storage***

Handling:	Do not handle or store near an open flame, heat or other sources of ignition. Use only with adequate ventilation. Wash thoroughly after handling. Avoid prolonged exposure.
Storage:	Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a closed container away from incompatible materials.

## ***VIII. Exposure Controls/Personal Protection***

Engineering Controls:	Local exhaust and ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product.
Respiratory Protection:	A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited.
Skin Protection:	Where contact is likely, wear chemical resistant gloves and rubber boots.
Eye Protection:	Wear safety glasses with side shields (or goggles) and a face shield. Do not wear contact lenses.
Other Protective Equipment:	Where splashing is possible, full chemically resistant protective clothing (acid suit) and boots are required. Emergency eyewash stations and deluge showers should be available in the work area.
Hygienic Practices:	Avoid contact with eyes, skin, and clothing. Wash hands before eating. Use only with adequate ventilation. Remove contaminated clothing and wash before reuse. Follow all MSDS/label precautions even after container is emptied they may retain product residues. Ground and bond containers when transferring material.

### **IX. Physical and Chemical Properties**

Boiling Point:	180 F	Vapor Density:	Heavier than air
Odor:	Not Determined	Odor Threshold:	No Information
Appearance:	Yellow	Evaporation Rate:	No Information
Solubility in H2O:	Not Determined	Specific Gravity:	1.0350
Freeze Point:	Not Determined	pH at 50.0%:	6-8 @ 100%
Vapor Pressure:	Not Determined	Viscosity:	Not Determined
Physical State:	Liquid		
Coefficient of Water Oil Distribution:	No Information		

### **X. Stability and Reactivity**

Conditions to Avoid:	Heat, flames and sparks.
Incompatibility:	Strong oxidizing agents.
Hazardous Decomposition Products:	Thermal decomposition may produce sulfur and nitrogen oxides; carbon dioxides, which can act as an asphyxiant; and carbon monoxide, which is toxic if inhaled.
Hazardous Polymerization:	Will not occur under normal conditions.
Stability:	This product is stable under normal storage conditions.

### **XI. Toxicological Properties**

Toxicological Properties:	No product information is available.
Oral:	Glycol Ethers: Oral: LD50 Rat:470 mg/kg. Isopropyl alcohol: Oral: LD50 Rat: 4396 mg/kg. Methanol: Oral: LD50 Rat:5628 mg/kg. Naphthalene: Oral: LD50 Rat:490 mg/kg.
Dermal:	Glycol Ethers: Dermal LD50 Rat:2270mg/kg; Dermal LD50 Rabbit: 220/mg/kg. Isopropyl Alcohol: Dermal LD50 Rat:12800 mg/kg; Dermal LD50 Rabbit:12870 mg/kg. Methanol: Dermal LD50 Rabbit: 15800mg/kg. Naphthalene Dermal: LD50 Rat: >2500mg/kg; Dermal LD50 Rabbit: >20g/kg.
Inhalation:	Glycol Ethers Inhalation: LC50 RAT:2.21mg/L/4H; inhalation LC50Rat: 450ppm/4H. Isopropyl alcohol Inhalation: LC50 Rat: 72.6mg/L/4H. Methanol Inhalation LC50 RAT: 83.2mg/L/4H; inhalation LC50 Rat: 64000 ppm/4H. Naphthalene inhalation LC50 Rat: >340mg/m3/1H

## ***XII. Ecological Information***

Ecological Properties: LC50 694 mg/L estimated, Fish, 96.00 Hours, EC50 18.59 mg/L estimated, Daphnia, 48.00 Hours, IC50 1691 mg/L estimated, Algae, 72.00 Hours. Components of this product have been identified as having potential environmental concerns.

Ecotoxicity: No product information is available.

Chemical Fate Information: No product information is available.

## ***XIII. Disposal Consideration***

Disposal Method: Dispose of this material and its container at hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies. If discarded, this product is considered a RCRA ignitable waste, D001. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Dispose in accordance with all applicable regulations.

RCRA Status: D001-Characteristic of ignitability.

## ***XIV. Transportation Information***

DOT Proper Shipping Name: Flammable liquids, n.o.s.

DOT Technical Name: (Contains Isopropanol)

DOT Hazard Class: 3

DOT Hazard Subclass:

DOT UN/NA Number: UN1993

Packing Group: III

Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA:	No Information		
TSCA Status:	All components of this product are listed on the Toxic Substance Control Act Inventory or are excluded from the listing requirements.		
CERCLA SARA:	This product has been reviewed according to the EPA 'Hazard Categories' promulgated under the sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: Chronic hazard, fire hazard		
SARA Section 313 Required Reporting:	Chemical	CAS Number	WT/WT%
	Methanol	67-56-1	5-15%
	Glycol Ether	111-76-2	1-5%

## ***XVI. Other Information***

Other Information:	NA = Not applicable	ND = Not Determined	NI = No Information	NE = Not Established
MSDS Updated:	3/19/2014			
MSDS Printed:	8/15/2014			

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



### *I. Chemical Product and Company Identification*

Product Name: Curable Resin Coated Sand HS  
Identification #: 35-511-2030  
Product Use/Class: Proppant- Manufactured  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 482  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: RAA  
Date Prepared: 04/21/2008

### *II. Composition/Information on Ingredients*

Chemical Name: Silica Sand  
CAS Number: 14808-60-7  
Percent by Mass Less Than: 97

Exposure Limits

Threshold Limit Value - Time Weighted Average: .30 mg/m3  
Threshold Limit Value - Short Term Exposure Limit: NE  
Permissible Exposure Limit - Time Weighted Average: .10 mg/m3  
Permissible Exposure Limit - Ceiling: NE  
Company Threshold Limit - Time Weighted Average: NI  
Skin: NI

Chemical Name: P/F Novolak Resin  
CAS Number: 9003-35-4  
Percent by Mass Less Than: 3-5

Exposure Limits

Threshold Limit Value - Time Weighted Average: NE  
Threshold Limit Value - Short Term Exposure Limit: NE  
Permissible Exposure Limit - Time Weighted Average: NE  
Permissible Exposure Limit - Ceiling: NE  
Company Threshold Limit - Time Weighted Average: NI  
Skin: NI

Chemical Name: Hexamethylenetetramine  
CAS Number: 1009-7-0  
Percent by Mass Less Than: <.01

Exposure Limits

Threshold Limit Value - Time Weighted Average: NE  
Threshold Limit Value - Short Term Exposure Limit: NE  
Permissible Exposure Limit - Time Weighted Average: NE  
Permissible Exposure Limit - Ceiling: NE  
Company Threshold Limit - Time Weighted Average: NI  
Skin: NI

### III. Hazardous Identification

Emergency Overview: May cause skin and eye irritation.

Eye Contact: Dust can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of the eyes.

Skin Contact: May cause skin irritation. Symptoms may include redness, burning, and swelling of skin. This material is unlikely to pass into the body through the skin.

Inhalation: Prolonged or repeated breathing of dust may result in progressive and permanent lung disease which may cause death from respiratory and/or heart failure.

Ingestion: This material is not likely to be swallowed.

Chronic Harards: Prolonged or repeated exposure may cause lung injury including silicosis. Crystalline silica has been classified by IARC as a known human carcinogen. Some human studies indicate potential for lung cancer from crystalline silica exposure. Long term exposures which result in silicosis may result in additional health effects. Risk of injury depends on duration and level of exposure.

Primary Route(s) of Entry:	<input checked="" type="checkbox"/> Skin Contact	<input checked="" type="checkbox"/> Eye Contact	<input type="checkbox"/> Ingestion
	<input type="checkbox"/> Skin Absorbtion	<input checked="" type="checkbox"/> Inhalation	

#### IV. First Aid Measures

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Get medical attention if irritation persists.

**Skin Contact:** Wash with soap and water. Get medical attention if irritation develops or persists.

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** If victim is conscious, give two glasses of water to dilute and induce vomiting by sticking finger to back of throat. Keep the victim's head below hips while vomiting. Never give anything by mouth to an unconscious person. Get immediate medical attention.

#### V. Fire Fighting Measures

**Flash Point:** N/A

**Auto Ignition Temperature:** No Information

**Lower Explosive Temp.:** No Information

**Upper Explosive Temp.:** No Information

**Extinguishing Media:** Alcohol Foam, CO2, Dry Chemical, Water Fog

**Unusual Fire and Explosive Harards:** Finely divided dust suspensions may cause an explosion when given a source of ignition.

**Special Fire Fighting Procedures:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear.

#### VI. Accidental Release Measures

**Steps to be Taken in Case Material is Released or Spilled:** Sweep material into a pile and then place in a chemical waste container. Avoid creating dust conditions. (See Exposure Controls/Personal Protection Section.) Spilled material should be contained and disposed of properly.

#### VII. Handling and Storage

**Handling:** Minimize dust exposure. Use wet method to reduce dust exposure.

**Storage:** Keep away from heat, sparks, and flames. Keep container closed when not in use. Store in a cool, dry, well ventilated place away from incompatible materials. Do not cut, grind, weld or drill on or near this container. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

#### VIII. Exposure Controls/Personal Protection

Engineering Controls:	Local exhaust and ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product.
Respiratory Protection:	If overexposure occurs, a NIOSH/MSHA approved respirator with a particulate filter is advised in absence of proper engineering control.
Skin Protection:	Wear normal work clothing covering arms and legs. If manual handling of material occurs, wear gloves to protect skin from cuts and scrapes.
Eye Protection:	Wear safety glasses in compliance with OSHA regulations.
Other Protective Equipment:	Emergency eyewash stations and deluge showers should be available in the work area.
Hygienic Practices:	Wash thoroughly after handling.

### ***IX. Physical and Chemical Properties***

Boiling Point:	No Information	Vapor Density:	No Information
Odor:	None	Odor Threshold:	No Information
Appearance:	Free flowing granules.	Evaporation Rate:	No Information
Solubility in H2O:	Insoluble	Specific Gravity:	2.53-2.60
Freeze Point:	No Information	pH at 50.0%:	No Information
Vapor Pressure:	No Information	Viscosity:	No Information
Physical State:	Solid		
Coefficient of Water Oil Distribution:	No Information		

### ***X. Stability and Reactivity***

Conditions to Avoid:	Heat, sparks, flames, other sources of ignition, and incompatibles.
Incompatibility:	Avoid contact with strong oxidizers and strong bases.
Hazardous Decomposition Products:	No Information
Hazardous Polymerization:	Will not occur under normal conditions.
Stability:	This product is stable under normal storage conditions.

### ***XI. Toxicological Properties***

Toxicological Properties:	The major concern is silicosis, caused by inhalation and retention of respirable crystalline silica dust. Crystalline silica is considered a carcinogen by the IARC and NTP, and is not regulated by OSHA. There is also evidence that silicosis is associated with increased incidence of several autoimmune disorders and increases the risk of pulmonary tuberculosis, if exposed to a person with tuberculosis. There is also evidence that exposure to respirable crystalline silica and silicosis is associated with increased incidents of kidney diseases.
Oral:	No product information is available.
Dermal:	No product information is available.
Inhalation:	See Toxicological Information.

### ***XII. Ecological Information***

Ecological Properties:	This product poses no significant environmental contamination impact during expected use, handling and proper disposal.
Ecotoxicity:	No product information is available.
Chemical Fate Information:	No product information is available.

### ***XIII. Disposal Consideration***

Disposal Method: Consult local, state, and federal regulatory agencies for acceptable disposal procedures and disposal locations.

RCRA Status: No product information is available.

### ***XIV. Transportation Information***

DOT Proper Shipping Name: Not DOT Regulated

DOT Technical Name:

DOT Hazard Class:

DOT Hazard Subclass:

DOT UN/NA Number:

Packing Group:

Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA: None listed

TSCA Status: All components of this product are listed on the Toxic Substance Control Act Inventory or are excluded from the listing requirements.

CERCLA SARA: This product has been reviewed according to the EPA 'Hazard Categories' promulgated under the sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: Immediate Health Hazard, Chronic Health Hazard

SARA Section 313  
Required Reporting:

## ***XVI. Other Information***

Other Information: NA = Not applicable ND = Not Determined NI = No Information NE = Not Established

MSDS Updated: 1/1/2012

MSDS Printed: 8/15/2014

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



### **I. Chemical Product and Company Identification**

Product Name: OB Breaker  
Identification #: 35-475-1102  
Product Use/Class: Gel breaker  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 2206  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: LZ  
Date Prepared: 05/23/2014

### **II. Composition/Information on Ingredients**

Chemical Name: Ammonium Persulfate  
CAS Number: 7727-54-0  
Percent by Mass Less Than: 90-100%

#### **Exposure Limits**

Threshold Limit Value - Time Weighted Average: -  
Threshold Limit Value - Short Term Exposure Limit: .1 mg/m<sup>3</sup>  
Permissible Exposure Limit - Time Weighted Average: 2.0 mg/m<sup>3</sup>  
Permissible Exposure Limit - Ceiling: -  
Company Threshold Limit - Time Weighted Average: -  
Skin: -

### **III. Hazardous Identification**

Emergency Overview: Harmful if swallowed. Causes irritation. May cause burns. Strong oxidizer. Contact with combustible materials, flammable materials, or powdered metals can cause fire or explosion. Keep from contact with clothing and other combustible materials. Do not store near combustible materials. Avoid contact with eyes, skin, clothing. Keep in tightly closed container. Wash thoroughly after handling. In case of fire, soak with water. In case of spill, sweep up and remove. Flush spill area with water.

Eye Contact: Slight irritation.  
Skin Contact: May cause irritation on prolonged or repeated contact.  
Inhalation: Dusts may be moderately to severely irritating to the nose, throat and respiratory tract.  
Ingestion: May be harmful by ingestion. May cause burns to mouth and stomach.  
Chronic Harards: None known.

Primary Route(s)  
of Entry:

☒ Skin Contact      ☒ Eye Contact      ☒ Ingestion  
☐ Skin Absorbtion      ☒ Inhalation

#### **IV. First Aid Measures**

Eye Contact:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes using an eyewash fountain, if available. Lift upper and lower lids and rinse well under them. Get medical attention, preferably an ophthalmologist if irritation occurs.
Skin Contact:	Flush affected areas with water for several minutes. Remove & wash clothing & shoes. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air. If not breathing, administer CPR or artificial respiration. If breathing is difficult or irritation develops, administer oxygen. Get medical attention if respiratory irritation occurs or if breathing becomes difficult.
Ingestion:	Induce Vomiting. Give two glasses of water and stick finger down throat. Immediately contact a physician.

#### **V. Fire Fighting Measures**

Flash Point:	Not Combustible.
Auto Ignition Temperature:	N/A
Lower Explosive Temp.:	N/A
Upper Explosive Temp.:	N/A
Extinguishing Media:	Soak with water, water spray.
Unusual Fire and Explosive Harards:	STRONG OXIDIZER. Contact with combustible materials, flammable materials, or powdered metals can cause fire or explosion. Note: decomposes at melting point (248°F).
Special Fire Fighting Procedures:	As in any fire, wear self-contained breathing apparatus and full protective gear. Move containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.

#### **VI. Accidental Release Measures**

Steps to be Taken in Case Material is Released or Spilled:	<p><b>SAFEGUARDS (PERSONNEL):</b> Wear appropriate personal protective equipment. Protect skin and eyes from exposure. If excessive dust is created, wear dust mask or respirator to keep exposure below the Permissible Exposure Level for particulate matter.</p> <p><b>INITIAL CONTAINMENT:</b> Keep combustibles (wood, paper, oil, etc.) away from spilled materials. With a clean shovel, carefully place materials into clean, dry container and cover; remove from area. Flush spill area with water. Dispose in accordance with all applicable federal, state, and local environmental regulations.</p> <p><b>MISCELLANEOUS:</b> EPA Hazardous Waste Number: D001 (Ignitable Waste).</p>
--	---

#### **VII. Handling and Storage**

Handling:	<p><b>HANDLING (PERSONNEL):</b> Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of the materials from eyes, skin and clothing. Avoid prolonged or repeated breathing of the dust. Wash thoroughly after handling product.</p> <p><b>HANDLING (PHYSICAL ASPECTS):</b> Strong Oxidizer avoid combustible materials.</p>
Storage:	Do not store near combustible materials.

#### **VIII. Exposure Controls/Personal Protection**

Engineering Controls:	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Good general ventilation should be sufficient to control airborne levels.
Respiratory Protection:	Not generally required unless needed to prevent respiratory irritation. If concentrations exist at elevated levels, use a NIOSH approved dust respirator, as a minimum. Follow guidelines contained in 29 CFR 1910.134 OSHA's respiratory protection standard.
Skin Protection:	Wear protective gloves to minimize skin contamination. When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material.
Eye Protection:	Where contact with this material is likely, chemical goggles are recommended.
Other Protective Equipment:	N/A
Hygienic Practices:	Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action.

### **IX. Physical and Chemical Properties**

Boiling Point:	N/A	Vapor Density:	N/A
	MELTING POINT: 248°F		
Odor:	Odorless.	Odor Threshold:	Not Determined
Appearance:	White crystals or powder.	Evaporation Rate:	Not Determined
Solubility in H2O:	Appreciable	Specific Gravity:	1.98
Freeze Point:	Decomposes	pH at 50.0%:	N/A
Vapor Pressure:	N/A	Viscosity:	Not Determined
Physical State:	Solid		
Coefficient of Water Oil Distribution:	Not Determined		

### **X. Stability and Reactivity**

Conditions to Avoid:	Heat, moisture, shock.
Incompatibility:	Strong reducing agents, organic materials, most common metals, combustible materials, strong acids, alkalis, halides, sodium peroxide.
Hazardous Decomposition Products:	Ammonia, oxides of sulfur, sulfuric acid, oxides of nitrogen.
Hazardous Polymization:	Hazardous polymerization does not occur.
Stability:	Stable.

### **XI. Toxicological Properties**

Toxicological Properties:	No product information is available.
Oral:	Ammonium Persulfate: Oral LD50 Rat: 689 mg/kg
Dermal:	No product information is available.
Inhalation:	Ammonium Persulfate: Inhalation LC50 Rat: 520 mg/L/1H

### **XII. Ecological Information**

Ecological Properties: No product information is available.  
Ecotoxicity: Test Code: Acute LC50  
Species: Bluegill Sunfish  
Results: 96 hr 103 mg/l  
Chemical Fate Information: No product information is available.

### ***XIII. Disposal Consideration***

Disposal Method: Do not allow this material to drain into sewers/water supplies. This product, in its present state, when discarded or disposed of, is not hazardous waste according to Federal regulations (40 CFR 261.4 (B)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations.

RCRA Status: EPA Hazardous Waste Number: D001 (Ignitable Waste).

### ***XIV. Transportation Information***

DOT Proper Shipping Name: Ammonium persulfate

DOT Technical Name: UN1444, Ammonium Persulfate, 5.1, PGIII

DOT Hazard Class: 5.1

DOT Hazard Subclass:

DOT UN/NA Number: UN1444

Packing Group: III

Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA: 29 CFR 1910.1200 hazardous chemical  
TSCA Status: This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).  
CERCLA SARA: Hazard categories: Immediate hazard - yes. Delayed hazard - yes. Fire hazard - yes. Pressure hazard - no. Reactivity hazard - yes.  
SARA Section 313 Chemical CAS Number WT/WT%  
Required Reporting: Ammonium Persulfate 7727-54-0 90-100%

## ***XVI. Other Information***

Other Information: NA = Not applicable ND = Not Determined NI = No Information NE = Not Established  
MSDS Updated: 5/23/2014  
MSDS Printed: 8/15/2014

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



## *I. Chemical Product and Company Identification*

Product Name: OB Act 10X  
Identification #: 35-475-1105  
Product Use/Class: Gel breaker  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 883  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: RAA  
Date Prepared: 09/11/2008

## *II. Composition/Information on Ingredients*

Chemical Name: Ethylene Glycol  
CAS Number: 107-21-1  
Percent by Mass Less Than: 2

### Exposure Limits

Threshold Limit Value - Time Weighted Average: NI  
Threshold Limit Value - Short Term Exposure Limit: 50 ppm  
Permissible Exposure Limit - Time Weighted Average: NI  
Permissible Exposure Limit - Ceiling: 50 ppm  
Company Threshold Limit - Time Weighted Average: NI  
Skin: No

Chemical Name: Copper Sulfate  
CAS Number: 7758-98-7  
Percent by Mass Less Than: 3

### Exposure Limits

Threshold Limit Value - Time Weighted Average: 1 mg/m3 (CU)  
Threshold Limit Value - Short Term Exposure Limit: NI  
Permissible Exposure Limit - Time Weighted Average: NI  
Permissible Exposure Limit - Ceiling: 1 mg/m3 (CU)  
Company Threshold Limit - Time Weighted Average: NI  
Skin: No

Chemical Name:	Copper
CAS Number:	7447-39-4
Percent by Mass Less Than:	1
Exposure Limits	
Threshold Limit Value - Time Weighted Average:	NI
Threshold Limit Value - Short Term Exposure Limit:	NI
Permissible Exposure Limit - Time Weighted Average:	NI
Permissible Exposure Limit - Ceiling:	NI
Company Threshold Limit - Time Weighted Average:	NI
Skin:	No
Chemical Name:	Sulfuric Acid
CAS Number:	NI
Percent by Mass Less Than:	1
Exposure Limits	
Threshold Limit Value - Time Weighted Average:	NI
Threshold Limit Value - Short Term Exposure Limit:	NI
Permissible Exposure Limit - Time Weighted Average:	NI
Permissible Exposure Limit - Ceiling:	NI
Company Threshold Limit - Time Weighted Average:	NI
Skin:	NI
Chemical Name:	Methanol
CAS Number:	67-56-1
Percent by Mass Less Than:	25
Exposure Limits	
Threshold Limit Value - Time Weighted Average:	200 ppm
Threshold Limit Value - Short Term Exposure Limit:	250 ppm
Permissible Exposure Limit - Time Weighted Average:	200 ppm
Permissible Exposure Limit - Ceiling:	200 ppm
Company Threshold Limit - Time Weighted Average:	NI
Skin:	NI

### ***III. Hazardous Identification***

Emergency Overview:	Flamable liquid and vapor. Vapor is heavier than air and can travel considerable distances to a source of ignition and flash back. Material can burn with little or no visible flame.
Eye Contact:	Severely irritating. If not removed promptly, product will injure eye tissue, which may result in permanent damage.
Skin Contact:	Repeated or prolonged contact causes drying, brittleness, cracking, and irritation. Prolonged and repeated skin contact with methanol-soaked material has produced toxic effects including vision effects and death.
Inhalation:	Extremely high levels cause stupor, headache, nausea, dizziness, unconsciousness, and may produce adverse effects on vision.
Ingestion:	Poisonous or fatal if swallowed. Get medical attention immediately. A small amount (usually two or more ounces) can cause mental sluggishness, nausea and vomiting leading to severe illness, and may produce adverse effects on vision with possible blindness or death if treatment is not received.
Chronic Harards:	Methanol is slowly eliminated from the body, therefore can have cummulative toxic effects with repeated exposures. Persons with existing skin, kidney, liver or eye disorders may be at increased risk when exposed to methanol.

Primary Route(s) of Entry:	<input checked="" type="checkbox"/> Skin Contact	<input checked="" type="checkbox"/> Eye Contact	<input checked="" type="checkbox"/> Ingestion
	<input type="checkbox"/> Skin Absorbtion	<input checked="" type="checkbox"/> Inhalation	

#### IV. First Aid Measures

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Get medical attention if irritation persists.
Skin Contact:	Immediately wash with plenty of water and mild soap. Remove contaminated clothing and footwear. Wash clothing before reuse and discard any footwear which can not be decontaminated. Get medical attention if irritation persists.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately. Keep the affected person warm and at rest.
Ingestion:	Poison. Get medical attention immediately; call 911 if available. DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconcious person.

#### V. Fire Fighting Measures

Flash Point:	11C (51.8F)
Auto Ignition Temperature:	385-446C (725F)
Lower Explosive Temp.:	6.0%
Upper Explosive Temp.:	36.0%
Extinguishing Media:	CO2, Dry Chemical, Water Spray, Alcohol Type Aqueous Film Forming Foam, Water Fog
Unusual Fire and Explosive Harards:	Partial oxidation of methanol can lead to the formation of formaldehyde, carbon monoxide, and formic acid. Methanol is TOXIC. Avoid all exposure, especially ingestion. Vapors may travel long distances along the ground before reaching a source of ignition and flash back. "Empty" containers retain product residue (liquid and/or vapors) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC, ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, properly bunged and promptly returned to a drum conditioner, or properly disposed of.
Special Fire Fighting Procedures:	Evacuate area and fight from a maximum distance or use unmanned hose holders or monitor nozzles. ALWAYS stay away from the ends of "bullet" tanks. Water spray should be used to cool fire-exposed structures and vessels. Water spray can be used to reduce the intensity of flames and to dilute spills to a non-flammable mixture. Keep personnel removed from and upwind of fire. If potential for exposure to vapors or products of combustion exists, wear full fire fighting turnout gear and NIOSH approved self-contained breathing apparatus. Oxidizing chemicals may accelerate the burning rate in a fire situation. Vapor is heavier than air and can travel a considerable distance to a source of ignition and flashback. Material can burn with little or no visible flame.

## **VI. Accidental Release Measures**

Steps to be Taken in Case Material is Released or Spilled:	Eliminate ignition sources. Avoid eye and skin contact; see section VIII for respirator information. Place leaking containers in well ventilated area with spill containment. If fire potential exists, blanket spill with alcohol-type aqueous film-forming foam or use water spray to disperse vapors. Contain spill to facilitate clean-up. Clean-up methods may include absorbent materials, vacuum truck, etc. Avoid runoff into storm sewers and ditches which lead to natural waterways. Depending on the size and nature of the release, all responders may need to be HAZWOPER trained and local, state, and federal authorities may need to be notified.
--	--

## **VII. Handling and Storage**

Handling:	Use with adequate ventilation. Keep containers closed when not in use. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapor. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling. Decontaminate soiled clothing thoroughly before re-use. Destroy contaminated leather clothing. DO not expose to temperatures above 120F. Do not handle near heat, sparks, or flame. Use spark-resistant tools. Do not load into compartments adjacent to heated cargo. Do not store in steel containers.
Storage:	Do not store with incompatible materials. Keep all containers tightly closed when not in use. Store out of direct sunlight and on an impermeable floor.

## **VIII. Exposure Controls/Personal Protection**

Engineering Controls:	General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (fans, switches, etc.) should be used in mechanical ventilation systems.
Respiratory Protection:	Based on workplace contaminate level and working limits of the respirator, use a respirator approved by NIOSH. The following is the minimum recommended equipment for an occupational exposure level. For concentrations $\geq 1$ and $\leq 100$ times the acceptable level: use Type C full facepiece supplied-air respirator operated in pressure-demand or continuous-flow mode. For concentrations $\geq 100$ times the acceptable level or greater than the IDLH level or unknown concentrations (such as in emergencies): use self-contained breathing apparatus with full facepiece in pressure-demand mode. Type C positive-pressure full facepiece supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus escape system. For escape: use self-contained breathing apparatus with full facepiece or any respirator specifically approved for escape.
Skin Protection:	Wear impervious clothing and gloves to prevent contact. Butyl rubber is recommended. Other protective material may be used, depending on the situation, if adequate degradation and permeation data are available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.
Eye Protection:	Wear chemical goggles when there is a reasonable chance of eye contact.
Other Protective Equipment:	Emergency eyewash stations and deluge showers should be available in the work area.
Hygienic Practices:	Wash thoroughly after handling.

### IX. Physical and Chemical Properties

Boiling Point:	64.7C (148.3F)	Vapor Density:	1.1
Odor:	Mild alcohol odor	Odor Threshold:	100-160 ppm
Appearance:	yellow-green	Evaporation Rate:	2.1-2.6 Faster than Butyl Acetate
Solubility in H2O:	Easily soluble in cold water.	Specific Gravity:	0.79-0.81
Freeze Point:	-98.7C (-144F)	pH at 50.0%:	No Information
Vapor Pressure:	97.68-100 mmHg	Viscosity:	.58 mPa.s (20C)
Physical State:	Liquid		
Coefficient of Water Oil Distribution:	P: 0.17; logP: -0.77		

### X. Stability and Reactivity

Conditions to Avoid:	Heat, sparks, flames, and other sources of ignition. Avoid contact with strong oxidizers.
Incompatibility:	Keep away from sulfuric and other strong inorganic acids; steel, aluminum or lead (including equipment made from these metals); keep away from magnesium, and oxidizing agents such as peroxides, nitric acid, perchloric acid or chromium trioxide. Keep away from strong bases. Avoid contact with strong acids, strong oxidizing agents, and strong caustics.
Hazardous Decomposition Products:	Carbon monoxide, formaldehyde, formic acid.
Hazardous Polymerization:	Will not occur under normal conditions.
Stability:	This product is stable under normal storage conditions.

### XI. Toxicological Properties

Toxicological Properties: METHANOL

Acute Exposure: Oral LD50: 6.2-12.98/kg (rats); practically nontoxic to animals. However, based on human exposure reports, a small amount (usually two or more ounces) can cause mental sluggishness, nausea, and vomiting leading to severe illness, and may produce adverse effects on vision with possible blindness or death if treatment is not received.

Inhalation LC50: 64000 ppm (rats, 4 hours); practically nontoxic to animals. Based on human exposure reports, levels substantially above the TLV cause stupor, headache, nausea, dizziness, unconsciousness, and may produce adverse effects on vision.

Skin: Irritating to rabbit skin. Severity depends on the quantity administered and exposure period and is related to the defatting properties of methanol; not a skin sensitizer. Slightly toxic to animals minimum lethal dose, monkeys: 1.6 g/kg; LD50, rabbits: 16 g/kg. Based on human exposure reports, prolonged and repeated skin contact with methanol-soaked material has produced toxic effects including vision effects and death.

Eye: Severely irritating to rabbit eye.

Repeated exposure: Inhalation exposure (6 hours/day, 5 days/week) of monkeys to vapor concentrations of 500, 2000, or 5000 ppm for four weeks did not result in any treatment-related effects. Monkeys exposed to methanol vapors of 10, 100, or 1000 ppm for 22 hours/day for up to 2.5 years showed changes in the liver, kidney, and nervous system at 1000 ppm (limited details reported). Rats exposed by oral gavage to 100, 500, or 2500 mg/kg/day methanol for 90 days exhibited only effects on organ weight (brain) and serum enzymes (SGPT, AP) at the high dose.

Mutagenicity: Not genotoxic in most in vitro assays. Not genotoxic in vivo in mice exposed via inhalation up to 4000 ppm (6 hours/day for 5 days) and subsequently examined for cytogenetic effects.

Carcinogenicity: Inhalation - Not carcinogenic in lifetime inhalation studies (reported in limited detail) in rats and mice at concentrations of 10-1000 ppm. Dermal - Not carcinogenic in mice exposed dermally to 0.02 ml/day, 2 days/week over a lifetime in a study of limited quality.

Reproductive/Developmental Effects: In an inhalation developmental toxicity study, rats were exposed 6 hours/day to 5000, 10000, or 20000 ppm vapors. A significant teratogenic response was seen at 20000 ppm. Fetotoxicity was noted at 10000 ppm, but not at 5000 ppm. In an inhalation developmental toxicity study, mice were exposed 7 hours/day to 2000, 500, or 10000 ppm vapors. Methanol caused severe developmental toxicity at all levels. Oral administration of methanol via gavage at 1.3, 2.6, or 5.2 ml/kg to rats resulted in developmental toxicity at all levels.

Oral:

Methanol LD50 is 5628 mg/kg (rat).

Methanol LD50 is 7300 mg/kg (mouse).

CUSO4 LD50: 300mg/kg (rat); LD50: 470 mg/kg (mammal); TDLO: 272 mg/kg (human-liver, kidney, blood effects); LDLO: 1088 mg/kg (human); LDLO: 60mg/kg (dog); LDLO: 1000mg/kg (pidgeon); LD50: 470mg/kg (mammal); LDLO: 300mg/kg (wild bird)

Dermal:

Methanol is a skin irritant. Absorption of methanol through the skin may add significantly to the overall toxic effect. Standard Draize skin test (rabbit) Dose: 20mg/24 hrs Reaction: Moderate

Inhalation:

CUSO4 LDLO guinea pig: 62 mg/kg

The LC50 is 64000 mg/kg (rat).

## ***XII. Ecological Information***

Ecological Properties:

ENVIRONMENTAL FATE:

Methanol

The ability of animals and microorganisms to rapidly biodegrade methanol coupled with its low n-octanol/water partition coefficient is expected to lead to its rapid removal if released into the environment.

CUSO<sub>4</sub>, however, is labeled a 'Marine Pollutant' and is expected to be toxic to aquatic life.

Ecotoxicity:

METHANOL

ECOTOXICITY:

Methanol exhibits low acute toxicity to aquatic species. The 24-, 48-, and 96-hour LC<sub>50</sub> values for various fish species (bluegill sunfish, fathead minnows, rainbow trout, goldfish, carp, bleak, creek chub) are in the range 1700-28100 ppm. The 18-, 24-, and 48-hour EC<sub>50</sub> values for the water flea (daphnids) are in the range 10000-24500 ppm. The 18-hour LC<sub>50</sub> for the grass shrimp is 21900 ppm and the 24-hour LC<sub>50</sub> for brine shrimp is >10000 ppm. Cell multiplication was inhibited after 8 days exposure to 8000 ppm and 530 ppm in the green algae and blue-green algae, respectively.

CUSO<sub>4</sub> Aquatic Toxicity Classification: LC<sub>50</sub>: 24 hour Daphnia Manga. 182mg = Rainbow Trout, 17mg/Bluegill, 1.5mg

Chemical Fate Information:

DEGRADATION:

Under aerobic conditions methanol is readily biodegradable. The 5-day BOD values are 48-83% of COD. Biodegradation also occurs under anaerobic conditions, e.g. 83-91% degradation in a marine water/sediment system after 3 days. Atmospheric photochemical degradation (half-life) is estimated to be 17.8 days. Volatilization half-lives of 4.8 days and 51.7 days have been estimated for a model river and a model pond, respectively.

BIOACCUMULATION:

The log n-octanol/ water partition coefficient for methanol is -0.77. This suggests that methanol has low potential to bioaccumulate.

### ***XIII. Disposal Consideration***

Disposal Method:

Consult local, state, and federal regulatory agencies for acceptable disposal procedures and disposal locations. Disposal should be conducted through a facility equipped with and operating an air emission control device in accordance with requirements of applicable Clean Air Act regulations.

RCRA Status:

No information.

### ***XIV. Transportation Information***

DOT Proper Shipping Name: Environmentally hazardous substances, liquid, n.o.s.  
DOT Technical Name: Contains Copper Sulfate, Marine Pollutant  
DOT Hazard Class: 9  
DOT Hazard Subclass:  
DOT UN/NA Number: UN3082  
Packing Group: III  
Resp. Guide Page:

DOT Proper Shipping Name: Methanol  
DOT Technical Name:  
DOT Hazard Class: 3  
DOT Hazard Subclass:  
DOT UN/NA Number: UN1230  
Packing Group: II  
Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA:	Hazardous by definition of Hazard Communication definition: DANGER!		
TSCA Status:	All components of this product are listed on the Toxic Substance Control Act Inventory or are excluded from the listing requirements.		
CERCLA SARA:	This product has been reviewed according to the EPA 'Hazard Categories' promulgated under the sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: Immediate Health Hazard, Chronic Health Hazard, Fire Hazard		
SARA Section 313 Required Reporting:	Chemical	CAS Number	WT/WT%
	Ethylene Glycol	107-21-1	2
	Copper	7447-39-4	1
	Methanol	67-56-1	25

## ***XVI. Other Information***

Other Information:	NA = Not applicable	ND = Not Determined	NI = No Information	NE = Not Established
MSDS Updated:	1/1/2012			
MSDS Printed:	8/15/2014			

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



## **I. Chemical Product and Company Identification**

Product Name: LSG-100  
Identification #: 35-485-0110  
Product Use/Class: Gelling Agent  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 1100  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: LZ  
Date Prepared: 12/02/2011

## **II. Composition/Information on Ingredients**

Chemical Name: Solvent naphtha, (petroleum) heavy aliphatic  
CAS Number: 64742-47-8  
Percent by Mass Less Than: 40 - 65 %

### **Exposure Limits**

Threshold Limit Value - Time Weighted Average: 500 ppm  
Threshold Limit Value - Short Term Exposure Limit: N/A  
Permissible Exposure Limit - Time Weighted Average: 100 ppm  
Permissible Exposure Limit - Ceiling: N/A  
Company Threshold Limit - Time Weighted Average: N/A  
Skin: N/A

Chemical Name: Proprietary non-hazardous polymers  
CAS Number: Proprietary  
Percent by Mass Less Than: 45 - 60 %

### **Exposure Limits**

Threshold Limit Value - Time Weighted Average: N/A  
Threshold Limit Value - Short Term Exposure Limit: N/A  
Permissible Exposure Limit - Time Weighted Average: N/A  
Permissible Exposure Limit - Ceiling: N/A  
Company Threshold Limit - Time Weighted Average: N/A  
Skin: N/A

## **III. Hazardous Identification**

Emergency Overview: N/A

Eye Contact: May cause irritation.

Skin Contact: N/A

Inhalation: May cause respiratory irritation.

Ingestion: N/A

Chronic Harards: N/A

Primary Route(s) of Entry:	<input type="checkbox"/> Skin Contact	<input checked="" type="checkbox"/> Eye Contact	<input type="checkbox"/> Ingestion
	<input type="checkbox"/> Skin Absorbtion	<input checked="" type="checkbox"/> Inhalation	

#### IV. First Aid Measures

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, seek medical attention.

Skin Contact: Wash with plenty of soap and water. Immediately remove contaminated clothing. If skin irritation occurs, seek medical attention. Launder contaminated clothing before reuse.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is labored, administer oxygen. If breathing has stopped, apply artificial respiration. If irritation persists or if toxic symptoms are observed, seek medical attention.

Ingestion: DO NOT INDUCE VOMITING. Seek immediate medical attention. Call a poison center or doctor if ingested.

#### V. Fire Fighting Measures

Flash Point: 76.7 C (170 F) PMCC

Auto Ignition Temperature: N/A

Lower Explosive Temp.: N/A

Upper Explosive Temp.: N/A

Extinguishing Media: CO2, dry chemical, or foam. Water can be used to cool and protect exposed material, however, may cause splattering.

Unusual Fire and Explosive Harards: N/A

Special Fire Fighting Procedures: Do not enter confined fire space without full helmet with face and shield, rubber boots, gloves and fire coat, including a NIOSH approved self-contained breathing apparatus. Aqueous solutions that become wet render surfaces extremely slippery.

#### VI. Accidental Release Measures

Steps to be Taken in Case Material is Released or Spilled: Personal precautions: Avoid contact with skin, eyes, and clothing.

Personal protection: Wear PVC, neoprene or nitrile rubber gloves, gauntlet type, PVC one-piece suit with integral hood, rubber safety boots, knee length.

Respiratory Protection: Use NIOSH approved air purifying respirator.

Clean-up methods: Absorb or contain material with sand, earth or spill control material.

Shovel up and place in a labeled sealable container for subsequent safe disposal.

## **VII. Handling and Storage**

Handling: Avoid prolonged or repeated contact with skin, eyes and clothing.  
Storage: Keep containers closed and dry.

## **VIII. Exposure Controls/Personal Protection**

Engineering Controls: General ventilation is recommended during normal use.  
Respiratory Protection: Use a NIOSH/MSHA approved air purifying respirator with an organic/amine vapor cartridge when airborne concentrations are expected to exceed exposure limits. Protection by air purifying respirators is limited.  
Skin Protection: Selection of protective clothing may include gloves, apron, boots and facial protection depending on the operations conducted. Wear chemical resistant gloves (PVC, nitrile, neoprene).  
Eye Protection: Safety goggles.  
Other Protective Equipment: N/A  
Hygienic Practices: N/A

## **IX. Physical and Chemical Properties**

Boiling Point:	ND	Vapor Density:	>14
Odor:	Characteristic	Odor Threshold:	N/A
Appearance:	Yellow to Tan Suspension	Evaporation Rate:	N/A
Solubility in H <sub>2</sub> O:	NA	Specific Gravity:	1.02
Freeze Point:	N/A	pH at 50.0%:	N/A
Vapor Pressure:	N/A	Viscosity:	250 cP
Physical State:	Liquid		
Coefficient of Water Oil Distribution:	N/A		

## **X. Stability and Reactivity**

Conditions to Avoid: N/A  
Incompatibility: Avoid contact with strong acids and oxidizers.  
Hazardous Decomposition Products: N/A  
Hazardous Polymerization: Will not occur under normal use and storage conditions.  
Stability: This material is considered chemically and thermally stable. Avoid extreme temperature.

## **XI. Toxicological Properties**

Toxicological Properties: No product information is available.  
Oral: Product is classified as moderately irritating to the digestive tract.  
Dermal: Product is classified as moderately irritating to the skin.  
Inhalation: Product is classified as moderately irritating to the eyes.

## **XII. Ecological Information**

Ecological Properties: No product information is available.  
Ecotoxicity: No product information is available.  
Chemical Fate Information: No product information is available.

### ***XIII. Disposal Consideration***

**Disposal Method:** This material, if discarded, is not a hazardous waste under RCRA Regulation 40 CFR 261. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

**RCRA Status:** The information on RCRA waste classification and disposal methodology provided above applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA 'listed hazardous waste or has any of the four RCRA 'hazardous waste characteristics. Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA 'listed hazardous waste'; information contained in Section 15 of this MSDS is not intended to indicate if the product is a 'listed hazardous waste.'

RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61 24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine ignitability, see Section 9 of this MSDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 2 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. The Company recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. The Company has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

### ***XIV. Transportation Information***

DOT Proper Shipping Name: Not DOT Regulated

DOT Technical Name:

DOT Hazard Class:

DOT Hazard Subclass:

DOT UN/NA Number:

Packing Group:

Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA: No Information

TSCA Status: All components of this product are listed on the TSCA 8(b) inventory. If identical components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

CERCLA SARA: Immediate (acute) health hazard - NO  
Chronic health hazard - YES  
Fire hazard - NO  
Reactivity hazard - NO

SARA Section 313  
Required Reporting:

## ***XVI. Other Information***

Other Information: NA = Not applicable ND = Not Determined NI = No Information NE = Not Established

MSDS Updated: 5/17/2013

MSDS Printed: 8/15/2014

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



### ***I. Chemical Product and Company Identification***

Product Name: Iron Acid 10M (12.6%-18.0%)  
Identification #: 35-410-1180  
Product Use/Class: Acid Blend  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 827  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: RAA  
Date Prepared: 09/09/2008

### ***II. Composition/Information on Ingredients***

Chemical Name: Hydrogen Chloride  
CAS Number: 7647-01-0  
Percent by Mass Less Than: .16

#### **Exposure Limits**

Threshold Limit Value - Time Weighted Average: NI  
Threshold Limit Value - Short Term Exposure Limit: 5 ppm  
Permissible Exposure Limit - Time Weighted Average: NI  
Permissible Exposure Limit - Ceiling: 2 ppm  
Company Threshold Limit - Time Weighted Average: NI  
Skin: NI

### ***III. Hazardous Identification***

#### Emergency Overview:

Danger! HCl is a very strong acid. Solutions can be extremely corrosive. The severity of effects depends on the concentration of the solution and the duration of the contact. Causes severe eye and skin burns. Causes severe digestive and respiratory tract burns. May cause fetal effects based upon animal studies. In general, HCl solutions and mist with a pH of 3 or less are a significant health concern. Water white to yellow green fuming liquid with pungent, choking odor. Corrosive material, avoid contact without PPE. Strong oxidizing agents, reducing agents, metals, bases, aldehydes, epoxides, explosives, acetylides, borides, carbides, cyanides, sulfides, and phosphides. Contact with common metals produces hydrogen gas which may form explosive mixtures in air. The DLH for Hydrogen Chloride is 50 ppm.

#### Eye Contact:

Low concentrations of vapor or mist (10-35 ppm) can be immediately irritating, causing redness. Concentrated vapor, mist, or splashed liquid can cause severe irritation, burns, and permanent blindness.

#### Skin Contact:

Liquid can cause severe irritation (redness, swelling, and pain) and corrosive skin damage with permanent scarring or even death. High vapor or mist concentration may cause redness, irritation, and burns to skin if contact is prolonged. Skin covered by perspiration or dampened clothing can also be affected. May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material. May be absorbed through the skin in harmful amounts.

#### Inhalation:

Vapor or mist from concentrated solutions can cause severe nasal irritation, sore throat, choking, coughing, and difficulty breathing (50-100 ppm). Prolonged exposures can cause burns and ulcers to the nose and throat. Severe exposures (1000-2000 ppm), for even a few minutes, can cause a life-threatening accumulation of fluid in the lungs (pulmonary edema).

#### Ingestion:

If ingested, solutions can cause corrosive burns to mouth, throat, esophagus, and stomach. May cause circulatory system failure. Symptoms may include difficulty in swallowing, intense thirst, nausea, vomiting, diarrhea, and in severe cases, collapse and death. Small amounts of acid which enter the lungs during ingestion or aspiration while vomiting can cause serious lung injury and death.

#### Chronic Harards:

Not listed as a human carcinogen by OSHA, IARC, or NTP. Repeated exposure to low concentrations of mist can cause brownish discoloration and damage to tooth enamel. Dental erosion becomes more severe with increased exposure. Repeated exposure to low concentrations can cause nose and gum bleeding. Chronic bronchitis and stomach pain (gastritis) have also been reported.

Primary Route(s)  
of Entry:

☒ Skin Contact

☒ Eye Contact

☐ Ingestion

☒ Skin Absorption

☒ Inhalation

#### IV. First Aid Measures

Eye Contact:	Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 20-30 minutes, by the clock, holding the eyelid(s) open. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting. Take care not to rinse contaminated water into the non-affected eye. If irritation persists, repeat flushing. Quickly transport victim to emergency care facility.
Skin Contact:	IMMEDIATELY flush contaminated area with lukewarm, gently flowing soap and water for at least 20-30 minutes, by the clock. Under running water, remove contaminated clothing, shoes, and leather goods. DO NOT INTERRUPT FLUSHING. If necessary, keep emergency vehicle waiting. Transport victim to emergency care facility immediately. Completely decontaminate clothing, shoes, and leather goods before re-use or dispose.
Inhalation:	Remove victim to fresh air. If breathing has ceased, do not give mouth-to-mouth but use mechanical device such as a bag and mask. If breathing is difficult, oxygen may be beneficial if administered by a person trained in its use, preferably on a physician's advise. Ensure victim is completely at rest. Do not allow any physical exertion. Symptoms may be delayed up to 48 hours after exposure. Immediately transport victim to an emergency medical facility.
Ingestion:	Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 8 to 10 oz of water. If milk is available, it may be administered, AFTER the water has been given. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Repeat administration of water. Quickly transport victim to an emergency medical facility.

## ***V. Fire Fighting Measures***

Flash Point:	N/A
Auto Ignition Temperature:	N/A
Lower Explosive Temp.:	N/A
Upper Explosive Temp.:	N/A
Extinguishing Media:	Use suitable media for surrounding material.
Unusual Fire and Explosive Harards:	Contact with common metals produces hydrogen gas which may form explosive mixtures in air. The IDLH for Hydrogen Chloride is 50 ppm. Reaction with water may generate heat that will increase the concentration of fumes in the air. Containers may explode when heated or if contaminated with water.
Special Fire Fighting Procedures:	Protect against decomposition products, wear positive pressure, full-facepiece SCBA or SAR with auxiliary SCBA. If this material is involved in a fire, keep surrounding containers cool with water spray and contain all runoff. Stay away from ends of tanks.

## ***VI. Accidental Release Measures***

Steps to be Taken in Case Material is Released or Spilled:	Restrict access to area until completion of clean-up. Ensure clean-up is conducted by fully-trained personnel only. Wear protective equipment; stop leak at source; dike area; prevent material from entering waterway; prevent contact with strong oxidizers and reducers; neutralize with soda ash, pump material to reclaim container; use absorbent which does not react with spilled chemical on remaining material; and, shovel into disposal container. Notify appropriate government authorities.
--	---

## ***VII. Handling and Storage***

- Handling:** Prevent release of vapor or mist into workplace air. Always ensure adequate ventilation in handling areas. When diluting or preparing solutions, slowly add acid to water to avoid boiling or splattering. Do not wear contaminated clothing or shoes. Wash prior to eating, drinking, smoking, or use of restroom and when leaving work. Heating of non-vented container may cause container to rupture. Do not dispose of material or empty container to the environment. For more detailed handling information for tank trucks and rail cars contact chemical manufacturer or supplier, or industry approved reference guides.
- Storage:** Do not allow to freeze. Do not store near heat or open flame. Store in a cool, dry, well-vented area, out of direct sunlight. Drums should be vented when received and then at least once a week to relieve internal pressure. Use corrosion-resistant structural materials and lighting and ventilation systems in the storage area. Floors should not allow liquids to penetrate. Wood and other organic/combustible materials should not be used on floors, structural materials, and ventilation systems in the storage area. Storage tanks should be above ground and surrounded with dikes capable of holding entire contents. Limit quantity of material in storage. Restrict access to storage area. Post warning signs as required. Keep storage area separate from populated work areas. Inspect periodically for deficiencies such as damage or leaks.

### **VIII. Exposure Controls/Personal Protection**

- Engineering Controls:** Engineering methods to control hazardous conditions are preferred. Methods include mechanical ventilation, process or personnel enclosure, and control of process conditions. Enclosure and isolation is recommended when dealing with large quantities. Use corrosion-resistant ventilation systems separate from other exhaust ventilation systems. Exhaust directly to outside. Local exhaust is generally required. Cleaning of contaminated exhaust air before release to the environment is usually required. Consider down-draft general exhaust ventilation in potential high concentration areas such as unloading stations, cylinder, drum or carboy filling stations, treatment vats, and waste disposal areas. Sufficient replacement air is necessary when exhausting.
- Respiratory Protection:** Avoid vapor and mist without respiratory protection. Exposure up to 50 ppm: Wear chemical cartridge respirator with cartridge to protect against hydrogen chloride; or gas mask with canister to protect against hydrogen chloride; or powered air-purifying respirator with cartridge to protect against hydrogen chloride; or SAR; or full face-piece SCBA.
- Skin Protection:** Impervious gloves; chemical goggles; coveralls, boots, long sleeve shirt and trousers, and apron to prevent all possible exposure.
- Eye Protection:** Face shield or gas-tight chemical splash goggles.
- Other Protective Equipment:** Emergency eyewash stations and deluge showers should be available in the work area.
- Hygienic Practices:** Wash thoroughly after handling.

### **IX. Physical and Chemical Properties**

Boiling Point:	60-105 C (140-221 F)	Vapor Density:	.7-1.3 @ 20C
Odor:	Pungent, choking odor	Odor Threshold:	3 ppm causes olfactory fatigue
Appearance:	Colorless to yellow-green	Evaporation Rate:	<1
Solubility in H2O:	100%	Specific Gravity:	1.0-1.2 @ 15.5 C
Freeze Point:	-34- -15C (-29- 5F)	pH at 50.0%:	for HCl solutions: -.7, .1 (1.0N), 1.1 (.1N), 2.02 (.01N), 2 (.2% solution)
Vapor Pressure:	14-80 mmHg @ 20 C	Viscosity:	No Information
Physical State:	Fuming Liquid		
Coefficient of Water Oil Distribution:	No Information		

### **X. Stability and Reactivity**

Conditions to Avoid:	Avoid excessive heat, direct sunlight, moisture, mechanical shock and decomposition.
Incompatibility:	Strong oxidizing agents, reducing agents, metals, bases, aldehydes, epoxides, explosives, acetylides, borides, carbides, silicides, cyanides, sulfides, and phosphide. Very corrosive to most metals.
Hazardous Decomposition Products:	HCl is thermally stable up to temperatures of about 1500 C (2730 F). At higher temperatures it breaks down to form toxic hydrogen chloride fumes and will react with water or steam to produce heat and toxic and corrosive fumes. Thermal oxidative decomposition produces toxic chlorine fumes and explosive hydrogen gas.
Hazardous Polymization:	Will not occur under normal conditions. Reaction of HCl with some incompatible materials such as acetylides and epoxides can cause polymerization.
Stability:	This product is stable under normal storage conditions. Large amounts of heat can be released when concentrated HCl is mixed with water or organic solvents.

## ***XI. Toxicological Properties***

Toxicological Properties:	<p>Symptoms include irritation of eyes, skin and mucous membranes, and corrosive eye damage. Death was due to lung injury.</p> <p>SUBCHRONIC EFFECTS: No data.</p> <p>CHRONIC EFFECTS/CARCINOGENICITY: Not listed as a human carcinogen by OSHA, IARC, or NTP.</p> <p>EPIDEMIOLOGY: No data.</p> <p>TERATOLOGY: No data.</p> <p>REPRODUCTIVE EFFECTS: Femal rats: 450 mg/m<sup>3</sup>; 1 hour either prior to mating or on day 9 of pregnancy; developmental effects observed; toxic effects including morality to mothers</p> <p>NEUROTOXICITY: No data.</p> <p>MUTAGENICITY: Mutagenic effects have been reported in one bacterial test (E. Coli-DNA repair), in three insect tests (Drosophila, grasshopper) and in one in vitro mammalian cell test (hamster lung cells). HCl was negative in another in vitro mammalian cell test (Syrian hamster embryo cells). The significance of the positive reports is questionable since pH (acidity) can influence the results of short-term tests.</p>
Oral:	INGESTION EFFECTS: Rabbit: Oral LD50; 900 mg/kg
Dermal:	<p>EYE EFFECTS: Rabbit: 1% solution; 20 seconds; scarring of cornea 5 mg; 30 seconds; mild irritation</p> <p>5% solution; unknown duration; minimal irritation</p> <p>SKIN EFFECTS: Rabbit: 0.5 mL; 17% solution; 4 hours; corrosive burns</p>
Inhalation:	<p>INHALATION EFFECTS: Aerosols (mists) of HCl Acid:</p> <p>Rat: LC50; 8300 mg/m<sup>3</sup> (5666 ppm); 30 minute exposure</p> <p>Rat: LC50; 45600 mg/m<sup>3</sup> (31008 ppm); 5 minute exposure</p> <p>Mouse: LC50; 3100 mg/m<sup>3</sup> (2142 ppm); 30 minute exposure</p> <p>Mouse: LC50; 16500 mg/m<sup>3</sup> (11238 ppm); 5 minute exposure</p>

## ***XII. Ecological Information***

Ecological Properties: This material is expected to be toxic to aquatic life.  
Ecotoxicity: ECOTOXICITY: Fish Toxicity LC50=862 mg/l; Trout LC100=10 mg/l/24hr; Mosquito fish TLm (fresh water)=282 ppm/96hr; Goldfish LC50=178 mg/l/1-2hr survival time; Bluegill LC50=3.6 mg/l/48hr; Shrimp LC50(salt water)= 100-330 ppm/48hr; Shore Crab LC50=240 mg/l/48hr; Chronic Plant Toxicity=100ppm;

Chemical Fate Information: When released into the soil, this material is not expected to biodegrade. Substance will neutralize soil carbonate-based components. When released into the soil, this material may leach into groundwater.

### ***XIII. Disposal Consideration***

Disposal Method: Because product uses, mixtures, processes, or contamination may render this material hazardous, it is the responsibility of the user/owner of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose of this material and the empty containers, liners, and rinsate according to current local, state, and federal regulations.

RCRA Status: Depending on the concentration of HCl acid in solution, may be considered an RCRA waste. The EPA Hazardous Waste number is D002.

### ***XIV. Transportation Information***

DOT Proper Shipping Name: Hydrochloric acid solution

DOT Technical Name:

DOT Hazard Class: 8

DOT Hazard Subclass:

DOT UN/NA Number: UN1789

Packing Group: II

Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA: Hazardous material.

TSCA Status: All components of this product are listed on the Toxic Substance Control Act Inventory or are excluded from the listing requirements.

CERCLA SARA: This product has been reviewed according to the EPA 'Hazard Categories' promulgated under the sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Acute

SARA Section 313  
Required Reporting:

## ***XVI. Other Information***

Other Information: NA = Not applicable ND = Not Determined NI = No Information NE = Not Established

MSDS Updated: 1/1/2012

MSDS Printed: 8/15/2014

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



### **I. Chemical Product and Company Identification**

Product Name: BioClear 200  
Identification #: 35-440-0200  
Product Use/Class: Biocide  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 411  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: LZ  
Date Prepared: 02/28/2013

### **II. Composition/Information on Ingredients**

Chemical Name: 2,2-Dibromo-3-Nitrilopropionamide  
CAS Number: 10222-01-2  
Percent by Mass Less Than: 20%

#### **Exposure Limits**

Threshold Limit Value - Time Weighted Average:	None Established
Threshold Limit Value - Short Term Exposure Limit:	None Established
Permissible Exposure Limit - Time Weighted Average:	None Established
Permissible Exposure Limit - Ceiling:	None Established
Company Threshold Limit - Time Weighted Average:	None Established
Skin:	None Established

### **III. Hazardous Identification**

Emergency Overview: DANGER! Corrosive material. Contact with this product may cause severe eye damage. MAY BE FATAL IF ABSORBED THROUGH SKIN. May cause sensitization by skin contact. Highly toxic to fish and/or other aquatic organisms. This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.

Eye Contact:	May cause chemical burns. May cause irritation with prolonged contact. Do not get this material in contact with eyes.
Skin Contact:	Prolonged contact may cause severe skin irritation with local redness and discomfort. Repeated exposure may cause irritation, even a burn. May cause sensitization of susceptible persons. Do not get this material in contact with skin.
Inhalation:	Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs. Do not breathe dust/fumes/gas/mist/vapors/spray.
Ingestion:	Harmful if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death. Do not ingest.
Chronic Harards:	ND

■ Skin Contact

■ Eye Contact

Primary Route(s)  
of Entry:

■ Skin Absorption

■ Inhalation

■ Ingestion

#### **IV. First Aid Measures**

- Eye Contact:** Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.
- Skin Contact:** Remove contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a physician or Poison Control Center immediately. Wash clothing separately before reuse.
- Inhalation:** Remove to fresh air. Do not use mouth-to-mouth method if victim inhaled the substance. If not breathing, give artificial respiration or give oxygen by trained personnel. Get medical attention immediately.
- Ingestion:** If material is ingested, immediately contact a physician or poison control center. Do not induce vomiting without advice from poison control center. Drink 1 or 2 glasses of water. **NOTE TO PHYSICIAN:** If material is ingested, probable mucosal damage may contraindicate the use of gastric lavage. Treat the affected person appropriately. In case of shortness of breath, give oxygen. Keep victim warm. Symptoms may be delayed. **GENERAL ADVICE:** In case of shortness of breath, give oxygen. Keep victim warm. Call a physician if symptoms develop or persist. Ensure that medical personnel are aware of the materials involved, and take precautions to protect themselves.

#### **V. Fire Fighting Measures**

- Flash Point:** > 359.6°F
- Auto Ignition Temperature:** Not Determined
- Lower Explosive Temp.:** N/A
- Upper Explosive Temp.:** N/A
- Extinguishing Media:** Water. Dry chemical, CO<sub>2</sub>, water spray or regular foam
- Unusual Fire and Explosive Harards:** Containers may explode when heated. Runoff to sewer may cause fire or explosion hazard. Fire may produce irritating, corrosive and/or toxic gases
- Special Fire Fighting Procedures:** In the event of fire and/or explosion do not breathe fumes. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Move containers from fire area if you can do it without risk. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out

#### **VI. Accidental Release Measures**

- Steps to be Taken in Case Material is Released or Spilled:** When handling or dealing with spills, wear protective clothing as indicated in the Personal Protective Equipment section. Cover wet spills with 10% sodium bicarbonate solution, water and then an inert absorbent before sweeping up and disposing as described for pesticide disposal. If drum contents are contaminated or decomposing, isolate unsealed drum in the open or in a well-ventilated area. Flood with 10% sodium bicarbonate solution and large volume of water, if necessary

## VII. Handling and Storage

Handling:	Do not handle or store near an open flame, heat or other sources of ignition. All equipment used when handling the product must be grounded. Do not breathe vapors or spray mist. Wear self-contained breathing apparatus and protective suit. Use only with adequate ventilation. Avoid release to the environment. Wash thoroughly after handling
Storage:	Keep locked-up. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Keep in a well-ventilated place. Keep out of the reach of children. Keep away from heat and flame

## VIII. Exposure Controls/Personal Protection

Engineering Controls:	Ensure adequate ventilation, especially in confined areas.
Respiratory Protection:	A NIOSH/MSHA approved particulate respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by particulate respirators is limited.
Skin Protection:	Wear chemical goggles. Wear safety glasses with side shields. Face-shield
Eye Protection:	Wear safety glasses with side shields (or goggles) and a face shield.
Other Protective Equipment:	Emergency eyewash stations and deluge showers should be available in the work area.
Hygienic Practices:	When using do not smoke. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice

## IX. Physical and Chemical Properties

Boiling Point:	> 158 F (> 70 C)	Vapor Density:	ND
Odor:	odourless - mild	Odor Threshold:	No Information
Appearance:	Colorless - yellow	Evaporation Rate:	No Information
Solubility in H2O:	ND	Specific Gravity:	1.18 - 1.24
Freeze Point:	ND	pH at 50.0%:	3 - 4
Vapor Pressure:	18.9 mm Hg @ 25°C (estimated)	Viscosity:	20 cps
Physical State:	Liquid		
Coefficient of Water Oil Distribution:	No Information		

## X. Stability and Reactivity

Conditions to Avoid: Heat, flames, and sparks.  
Incompatibility: Avoid contact with oxidizers, strong bases and metals like aluminum.  
Hazardous Decomposition Products: N/A  
Hazardous Polymization: Will not occur under normal conditions.  
Stability: This product is stable under normal storage conditions.

### ***XI. Toxicological Properties***

Toxicological Properties: Not expected to be hazardous by OSHA criteria. Excessive exposure may increase the blood and tissue levels of bromine. Observations in animals include kidney effects following repeated ingestion of active ingredient, but no evidence of systematic toxicity following repeated dermal exposure at maximum attainable doses.

Oral: Acute LD50: > 2000 mg/kg, Rat, Oral

Dermal: Acute LD50: 510 mg/kg, Rat, Dermal

Inhalation: Acute LC50: 1.25 - 1.4 mg/l/4h, Rat, Inhalation

### ***XII. Ecological Information***

Ecological Properties: Components of this product have been identified as having potential environmental concerns.

Ecotoxicity: LC50 3.6 mg/l estimated, Rainbow Trout, 96.00 Hours, ; EC50 2.5 mg/l estimated, Daphnia, 48.00 Hours,

Chemical Fate Information: No information

### ***XIII. Disposal Consideration***

Disposal Method: Do not allow this material to drain into sewers/water supplies. This product, in its present state, when discarded or disposed of, is not a hazardous waste, according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose of in accordance with all applicable regulations.

RCRA Status: Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations

### ***XIV. Transportation Information***

DOT Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s.

DOT Technical Name: (2,2-DIBROMO-3-NITRILOPROPIONAMIDE)

DOT Hazard Class: 8

DOT Hazard Subclass:

DOT UN/NA Number: UN3265

Packing Group: III

Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA:	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200		
TSCA Status:	All components of this product are listed on the Toxic Substance Control Act Inventory or are excluded from the listing requirements.		
CERCLA SARA:	Immediate Hazard - Yes; Delayed Hazard - Yes; Fire Hazard - No; Pressure Hazard - No; Reactivity Hazard - No		
SARA Section 313 Required Reporting:	Chemical 2,2-Dibromo-3- Nitrilopropionamide	CAS Number 10222-01-2	WT/WT% 20%

## ***XVI. Other Information***

Other Information:	NA = Not applicable	ND = Not Determined	NI = No Information	NE = Not Established
MSDS Updated:	2/28/2013			
MSDS Printed:	8/15/2014			

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



## ***I. Chemical Product and Company Identification***

Product Name: Acid Inhibitor 2 (AI-2)  
Identification #: 35-405-0002  
Product Use/Class: Acid Corrosion Inhibitor  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 398  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: KLH  
Date Prepared: 11/18/2011

## ***II. Composition/Information on Ingredients***

Chemical Name: Ethoxylated Nonylphenol  
CAS Number: 68412-54-4  
Percent by Mass Less Than: 7-13%

### Exposure Limits

Threshold Limit Value - Time Weighted Average: N/A  
Threshold Limit Value - Short Term Exposure Limit: N/A  
Permissible Exposure Limit - Time Weighted Average: N/A  
Permissible Exposure Limit - Ceiling: N/A  
Company Threshold Limit - Time Weighted Average: N/A  
Skin: N/A

Chemical Name: Tar bases, quinoline derivs, benzyl chloride-  
quaternized  
CAS Number: 72480-70-7  
Percent by Mass Less Than: 5-10%

### Exposure Limits

Threshold Limit Value - Time Weighted Average:<sup>†</sup> N/A  
Threshold Limit Value - Short Term Exposure Limit: N/A  
Permissible Exposure Limit - Time Weighted Average: N/A  
Permissible Exposure Limit - Ceiling: N/A  
Company Threshold Limit - Time Weighted Average: N/A  
Skin: N/A

Chemical Name:	Propargyl Alcohol
CAS Number:	107-19-7
Percent by Mass Less Than:	15-40%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	N/A
Threshold Limit Value - Short Term Exposure Limit:	N/A
Permissible Exposure Limit - Time Weighted Average:	N/A
Permissible Exposure Limit - Ceiling:	N/A
Company Threshold Limit - Time Weighted Average:	N/A
Skin:	N/A

Chemical Name:	Glycol Ethers
CAS Number:	111-76-2
Percent by Mass Less Than:	15-40%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	N/A
Threshold Limit Value - Short Term Exposure Limit:	N/A
Permissible Exposure Limit - Time Weighted Average:	N/A
Permissible Exposure Limit - Ceiling:	N/A
Company Threshold Limit - Time Weighted Average:	N/A
Skin:	N/A

Chemical Name:	Isopropyl Alcohol
CAS Number:	67-63-0
Percent by Mass Less Than:	15-40%

Exposure Limits

Threshold Limit Value - Time Weighted Average:	N/A
Threshold Limit Value - Short Term Exposure Limit:	N/A
Permissible Exposure Limit - Time Weighted Average:	N/A
Permissible Exposure Limit - Ceiling:	N/A
Company Threshold Limit - Time Weighted Average:	N/A
Skin:	N/A

### ***III. Hazardous Identification***

#### Emergency Overview:

**WARNING. TOXIC. FLAMMABLE LIQUID AND VAPOR.** Toxic in contact with skin and if swallowed. Harmful if inhaled. Irritating to eyes, respiratory system and skin. Will be easily ignited by heat, spark or flames. Do not get this material in contact with skin or eyes. Do not breathe spray mist. Prolonged exposure may cause chronic effects.

#### Eye Contact:

Do not get this material in contact with eyes. Contact may irritate or burn eyes.

#### Skin Contact:

Do not get this material in contact with skin. Toxic in contact with skin. This product may be harmful if it is absorbed through the skin. Irritating to skin. Prolonged or repeated skin contact may result in redness, burning sensation or dermatitis.

#### Inhalation:

Do not breathe vapor. Harmful if inhaled. Prolonged inhalation may be harmful. May cause irritation of respiratory tract.

#### Ingestion:

Do not ingest. Toxic if swallowed. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. May cause delayed lung damage. Components of the product may be absorbed into the body by ingestion.

#### Chronic Harards:

This product may be harmful if it is absorbed through the skin. Unconsciousness. Shortness of breath. Edema. Jaundice. Cyanosis. Liver injury may occur. Kidney injury may occur. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion, and blurred vision) and/or damage. May cause delayed lung damage.

#### Primary Route(s) of Entry:

■ Skin Contact

■ Eye Contact

■ Ingestion

■ Skin Absorbtion

■ Inhalation

### IV. First Aid Measures

#### Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

#### Skin Contact:

Wash off with soap and water. Get medical attention if irritation develops or persists.

#### Inhalation:

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately.

#### Ingestion:

If swallowed, seek medical advice immediately and show this container or label. Do not induce vomiting without medical advice.

### V. Fire Fighting Measures

Flash Point: 85 F

Auto Ignition Temperature: 172.4 F

Lower Explosive Temp.: 1.1%

Upper Explosive Temp.: 12.0%

Extinguishing Media: Alcohol foam. Dry chemical. Carbon dioxide (CO2).

Unusual Fire and Explosive Harards: Fire may produce irritating, corrosive and/or toxic gases.

#### Special Fire Fighting Procedures:

In the event of fire and/or explosion do not breathe fumes. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Move containers from fire area if you can do it without risk. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

## **VI. Accidental Release Measures**

Steps to be Taken in Case Material is Released or Spilled: Should not be released into the environment. Large Spills: Dike far ahead of liquid spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean contaminated surface thoroughly. Never return spills in original containers for re-use.

## **VII. Handling and Storage**

Handling: Do not handle or store near an open flame, heat or other sources of ignition. All equipment used when handling the product must be grounded. Do not breathe vapors or spray mist. Use only with adequate ventilation. Wash thoroughly after handling. Avoid prolonged exposure.

Storage: Store in a closed container away from incompatible materials.

## **VIII. Exposure Controls/Personal Protection**

Engineering Controls: Ensure adequate ventilation, especially in confined areas.

Respiratory Protection: Respiratory protection is required if the airborne concentration exceeds the TLV.

Skin Protection: Wear chemical protective equipment that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Wear appropriate chemical resistant gloves. Impervious gloves. Wear suitable protective clothing.

Eye Protection: Wear chemical goggles. Face-shield.

Other Protective Equipment: Where splashing is possible, full chemically resistant protective clothing (acid suit) and boots are required. Emergency eyewash stations and deluge showers should be available in the work area.

Hygienic Practices: Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. When using do not eat or drink. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling and before eating.

## **IX. Physical and Chemical Properties**

Boiling Point:	201.2 F estimated	Vapor Density:	ND
Odor:	Alcohol like.	Odor Threshold:	ND
Appearance:	Dark red or Purple	Evaporation Rate:	Faster than Butyl Acetate
Solubility in H2O:	Complete	Specific Gravity:	0.99
Freeze Point:	ND	pH at 50.0%:	2 - 3
Vapor Pressure:	ND	Viscosity:	ND
Physical State:	Liquid		
Coefficient of Water Oil Distribution:	ND		

## **X. Stability and Reactivity**

Conditions to Avoid: Heat, flames and sparks.  
Incompatibility: May form explosive mixtures with air. Amines. Isocyanates. Strong oxidizing agents. Strong acids. Caustics.  
Hazardous Decomposition Products: Carbon oxides.  
Hazardous Polymization: Hazardous polymerization does not occur  
Stability: Risk of ignition. Stable at normal conditions.

### ***XI. Toxicological Properties***

Toxicological Properties: N/A  
Oral: Acute LD50: 141 mg/kg estimated, Rat, Oral  
Dermal: Acute LD50: 113 mg/kg estimated, Rat, Dermal  
Inhalation: Acute LC50: 557 mg/l/4h estimated, Rat, Inhalation

### ***XII. Ecological Information***

Ecological Properties: Components of this product have been identified as having potential environmental concerns.  
Ecotoxicity: LC50 10.28 mg/L estimated, Fish, 96.00 Hours, IC50 8562 mg/L estimated, Algae, 72.00 Hours, Components of this product have been identified as having potential environmental concerns.  
Chemical Fate Information: ND

### ***XIII. Disposal Consideration***

Disposal Method: Dispose of this material and its container at hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies. If discarded, this product is considered a RCRA ignitable waste, D001. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Dispose in accordance with all applicable regulations.  
RCRA Status: If discarded, this product is considered a RCRA ignitable waste, D001. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Dispose in accordance with all applicable regulations.

### ***XIV. Transportation Information***

DOT Proper Shipping Name: Flammable liquids, toxic, n.o.s.  
DOT Technical Name: Contains Isopropanol and Propargyl Alcohol  
DOT Hazard Class: 3  
DOT Hazard Subclass:  
DOT UN/NA Number: UN1992  
Packing Group: III  
Resp. Guide Page:

## ***XV. Regulatory Information***

OSHA:	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200		
TSCA Status:	All components are on the U.S. EPA TSCA Inventory List.		
CERCLA SARA:	Immediate Hazard - Yes; Delayed Hazard - Yes; Fire Hazard - Yes; Pressure Hazard - No; Reactivity Hazard - No		
SARA Section 313 Required Reporting:	Chemical	CAS Number	WT/WT%
	Ethoxylated Nonylphenol	68412-54-4	7-13%
	Tar bases, quinoline derivs, benzyl chloride- quaternized	72480-70-7	5-10%
	Propargyl Alcohol	107-19-7	15-40%
	Glycol Ethers	111-76-2	15-40%
	Isopropyl Alcohol	67-63-0	15-40%

## ***XVI. Other Information***

Other Information:	NA = Not applicable	ND = Not Determined	NI = No Information	NE = Not Established
MSDS Updated:	12/9/2012			
MSDS Printed:	8/15/2014			

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.



### **I. Chemical Product and Company Identification**

Product Name: MI Local 20/40 mesh Sand  
Identification #: 35-549-2041  
Product Use/Class: Bulk Sand  
Supplier: Nabors Completion and Production Services  
515 W. Greens Road, Suite 1100, Houston, TX 77067  
Supplier Tracking Code: 1415  
Emergency Contact: CHEMTREC 1 (800) 424-9300  
Prepared By: LZ  
Date Prepared: 01/14/2013

### **II. Composition/Information on Ingredients**

Chemical Name: Crystalline Silica (in the form of quartz)  
CAS Number: 14808-60-7  
Percent by Mass Less Than: 87-99.9%

#### **Exposure Limits**

Threshold Limit Value - Time Weighted Average: .05 mg/m3 respirable  
Threshold Limit Value - Short Term Exposure Limit: NI  
Permissible Exposure Limit - Time Weighted Average: 10 mg/m3/(%SiO<sub>2</sub>+2) r  
Permissible Exposure Limit - Ceiling: NI  
Company Threshold Limit - Time Weighted Average: NI  
Skin: NI

### **III. Hazardous Identification**

Emergency Overview: Lung injury and cancer hazard. Do not breath dust. May cause delayed lung injury. Long term exposure can cause silicosis.

Eye Contact: May cause eye irritation and possible injury.

Skin Contact: No adverse effects anticipated.

Inhalation: Lung injury and cancer hazard. Do not breath dust. May cause delayed lung injury. Long term exposure can cause silicosis.

Ingestion: No adverse effects anticipated.

Chronic Harards: Lung injury and cancer hazard. Do not breath dust. May cause delayed lung injury. Long term exposure can cause silicosis.

Primary Route(s)  
of Entry:

☐ Skin Contact

☒ Eye Contact

☐ Skin Absorbtion

☒ Inhalation

☐ Ingestion

### **IV. First Aid Measures**

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Get medical attention if irritation persists.
Skin Contact:	No first aid needed.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Get prompt medical attention!
Ingestion:	If large amount swallowed, DO NOT induce vomiting. Get medical attention IMMEDIATELY.

### ***V. Fire Fighting Measures***

Flash Point:	Non-flammable
Auto Ignition Temperature:	NA
Lower Explosive Temp.:	NA
Upper Explosive Temp.:	NA
Extinguishing Media:	Use media suitable for surrounding material.
Unusual Fire and Explosive Harards:	None expected.
Special Fire Fighting Procedures:	As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear. Use water to keep containers cool.

### ***VI. Accidental Release Measures***

Steps to be Taken in Case Material is Released or Spilled:	Wear appropriate protective equipment. If uncontaminated, collect using dustless method and place in appropriate container for use. If contaminated: a) use appropriate method for the nature of the contamination, and b) consider possible toxic or fire hazards associated with the contaminating substances. Collect for appropriate disposal.
--	--

### ***VII. Handling and Storage***

Handling:	Do not breath dust. Do not rely on your sight to determine if dust is in the air. Silica may be in the air without a dust cloud. Avoid creation of resprable dust. Do not use a dry abrasive blasting agent, this is prohibited.
Storage:	Use good houskeeping in storage and use ares to prevent accumulation of dust in work area. Use adequate ventilation and dust collection.

### ***VIII. Exposure Controls/Personal Protection***

Engineering Controls:	Local exhaust and ventilation is necessary.
Respiratory Protection:	A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive air supply respirator if there is any potential for an uncontrolled relase, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Skin Protection:	Wear impervious gloves, shoes, and protective clothing to prevent skin contact.
Eye Protection:	Wear safety goggles or glasses as appropriate for the job.
Other Protective Equipment:	None anticipated.
Hygienic Practices:	Wash thoroughly after handling. Remove dusty clothing and wash before reuse. Avoid breathing dust.

### ***IX. Physical and Chemical Properties***

Boiling Point:	Boiling point = 4046 F	Vapor Density:	NA
Odor:	odorless	Odor Threshold:	NA
Appearance:	White to tan fine granules	Evaporation Rate:	None.
Solubility in H2O:	Negligible	Specific Gravity:	2.65
Freeze Point:	NI	pH at 50.0%:	6-7.5
Vapor Pressure:	10mm @ 1730oC	Viscosity:	NI
Physical State:	Solid		
Coefficient of Water Oil Distribution:	NI		

### ***X. Stability and Reactivity***

Conditions to Avoid:	Avoid temperature extremes, and incompatibles.
Incompatibility:	Powerful oxidizing agents, hydrofluoric acid, strong alkalis, metallic oxides.
Hazardous Decomposition Products:	Silica will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride. When exposed to high temperatures, may change crystalline structure to form tridymite (above 870C) or Cristobalite (above 1470C) which pose greater health hazards than quartz.
Hazardous Polymerization:	Will not occur.
Stability:	Stable

### ***XI. Toxicological Properties***

Toxicological Properties:	IARC and the National Toxicology Program have determined that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite. Among individuals with silicosis, lung cancer occurs more frequently in those who smoke.
Oral:	No product information is available.
Dermal:	No product information is available.
Inhalation:	TClo: 16mppcf/8hr/17.9yrs LClo: 300mgs/m3/10yrs

### ***XII. Ecological Information***

Ecological Properties:	May be toxic to marine life.
Ecotoxicity:	Aquatic Toxicity Rating TLm 96: over 1000 ppm
Chemical Fate Information:	No product information is available.

### ***XIII. Disposal Consideration***

Disposal Method:	Consult local, state, and federal regulatory agencies for acceptable disposal procedures and disposal locations. Disposal in streams or sewers may be prohibited by federal, state, and local regulations.
RCRA Status:	Not classified a hazardous waste.

### ***XIV. Transportation Information***

### ***XV. Regulatory Information***

OSHA: No OSHA information listed.  
TSCA Status: Crystalline silica (quartz) is on the EPA Toxic Substance Control Act (TSCA) Section 8(b) inventory under CAS No. 14808-60-7.  
CERCLA SARA: No Information  
SARA Section 313  
Required Reporting:

#### ***XVI. Other Information***

Other Information: NA = Not applicable ND = Not Determined NI = No Information NE = Not Established  
MSDS Updated:  
MSDS Printed: 8/15/2014

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, or when used in conjunction with other products, exposures must be evaluated by the user so that appropriate handling practices and training programs can be established to ensure safe workplace operations. This information is confidential to Nabors Completion & Production Services Company (Nabors) and intended solely for the use of the individual or entity to whom they are directly distributed. Distribution or use beyond the individual or entity is strictly prohibited without the consent of Nabors.